E949 PNN2 status update
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November 29, 2005

Followup of November 22, 2005 Status Note

Abstract

This addendum to the November 22nd Status Note is to attempt to answer question about the problematic event. This event had different reconstructions using updated code and also showed different quantities in the target pion energy. These problems are now fixed.

1 Problem with event RUN=48707 EVENT=48328

As reported in http://www.phy.bnl.gov/e949/software/meetings/bnl/22nov05/status_Nov22.pdf, this event changes target quantities energy, time, etc due to an update in the *get_tim_e949new.F*.

1.1 Benji's solution

In *TGrecon*, the list of possible Late Kaons are filled with candidates from an the same source as *Swathccd*. The list picks possible hits that have energy = [4.,999.] and time = [+8.,60.]. This however is includes hits we are not interested in. Any hit that occurs much after *trs* cannot be from a decaying Kaon whose products cause the trigger to fire, so hits with $time > trs$ should be excluded.

Solution: In *TGrecon*, make the initial Late Kaon Candidate List require times from +8.0ns to the minimum of *trs* and 60.0ns. This should, in theory, reduce possible confusion with creating late kaon clusters and so will yield better reconstructions on some problematic events.
The reconstruction of the target for this event is show in the following figures. (1) was done the original way (used in the 1st skimming). (2) uses the new *get_tim_e949new.F*, and (3) uses the new *get_tim_e949new.F* and modified version of *TGrecon*.
Solution2: Do not use pulsate during pass2 processing. I did not have a PULSATETT=F statement in the kcm files. Jim gave me the appropriate file needed. Place a @nopulsate in pass2_misc_setup.kcm, such that nopulsate has a PULSATETT=F statement.
This oversight lead to an additional hit in a Kaon fiber at t=52ns. Luckily this more obvious problem lead to the observation of less obvious problems.

1.2 Jim's

Here are comments provided by Jim in an email.

I have good news and bad news:

- 1) The event in question was one in which the target tdcs had an unpacking error. The energies were different simply due to the same reason that I was diagnosing when adcenrg was occasionally greater than ek_tg. The 'corrected' version gives the correct energies, based upon adc calibrations. The 'uncorrected' version gives the energies based upon the ccd area calibrations. For consistency, if for no other reason, we want to use the adc calibrations. Thus, the corrected version is preferred.

- 2) I need to add additional code in the get_time_e949new routine in order to make other arrays come out correctly. Time is ok (based upon ccd information); energy is ok (based upon adc information); but pulse width and 'gain' (which says where the information came from) which are used in swathccd are not yet ok. The author of this routine is unclear of how to make the fix so as not to screw up other things.

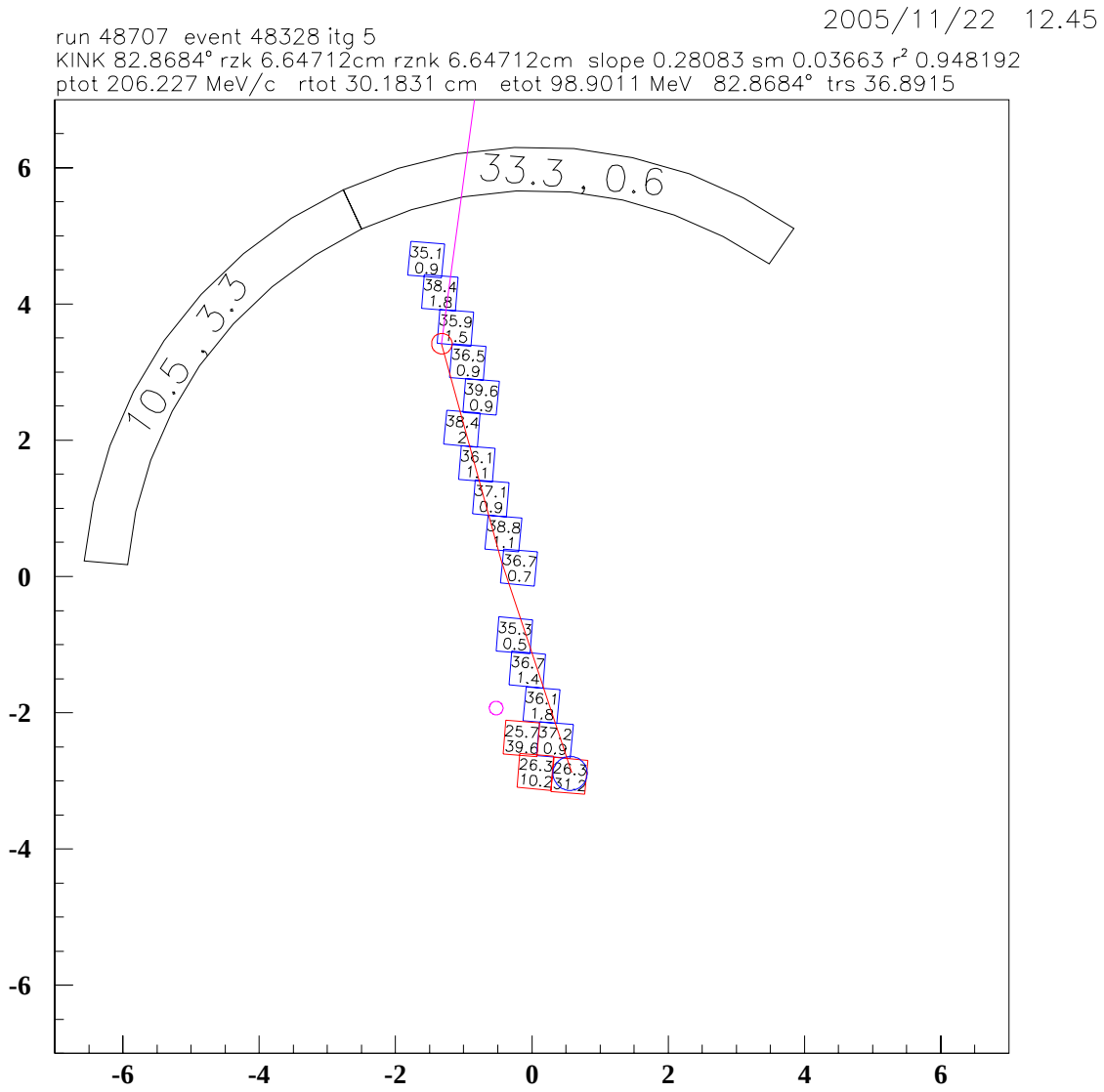

Figure 1: Run 48707 Event 484328; with old *get_tim_e949new.F*.

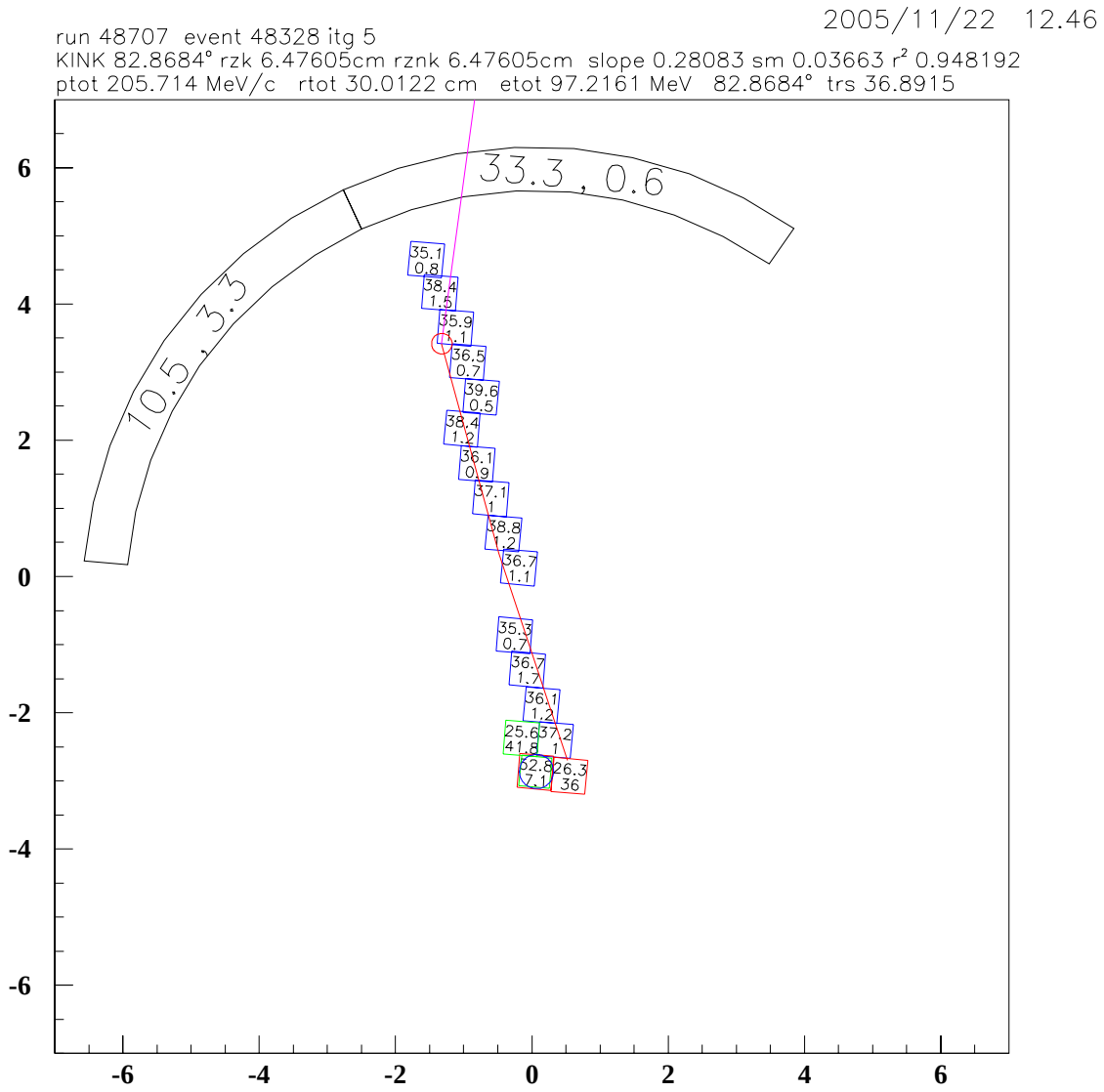

Figure 2: Run 48707 Event 484328; with new *get_tim_e949new.F*.

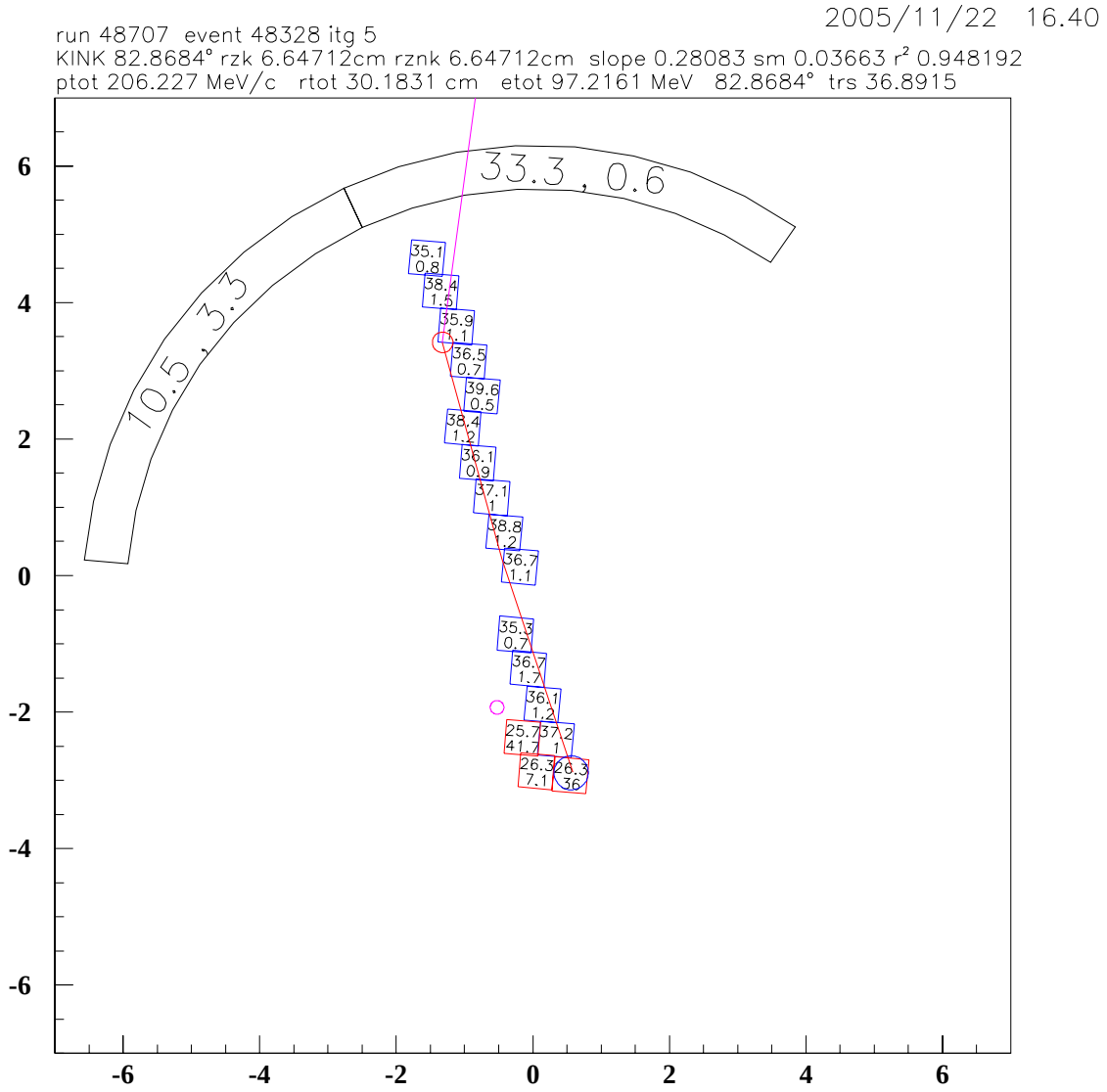

Figure 3: Run 48707 Event 484328; with new *get_tim_e949new.F* and new *TGrecon* with late-k fix.